DOCUMENT RESUME

ED 045 797 VT 008 186

AUTHOR	Wolansky, William D.; Cochran, Leslie H.
TITLE	Experienced Teacher Fellowship Program. Final Report.
INSTITUTION	Wayne State Univ., Detroit, Mich. Dept. of Industrial Education.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	68
NOTE	64p.
EDRS PRICE	EDRS Price MF-$0.50 HC-$3.30
DESCRIPTORS	Curriculum, Curriculum Development, *Fellowships, Graduate Study, *Industrial Arts, *Industrial Arts Teachers, *Program Descriptions, *Teacher Education
IDENTIFIERS	*Galaxy Plan

ABSTRACT

The Industrial Arts Fellowship Program provides an opportunity for 24 experienced teachers to pursue graduate study related to two occupational clusters: industrial materials and processes or energy and propulsion systems. As part of their studies, students developed, field tested, and evaluated curriculum materials which applied these evolving technologies in the school systems. The participants, selected from 176 applicants and represented 12 states, each received a $4,000 taxfree fellowship and a $600 stipend for each dependent from funding provided by Title V, Part C of the Higher Education Act of 1965. The specially selected courses resulted in a master's degree for each fellow. The appendix includes a participant screening device and participant list. A related document, containing materials developed during the program, is available as VT 008 187. (EM)

ED0 45797

the galaxy plan in industrial education

FINAL REPORT

experienced teacher fellowship program

wayne state university

1967-1968

VT008186

Supported by the U.S. Office of Education, As Authorized Under (Title V, Part C, P.L. 89-329, Higher Education Act of 1951)

ED0 45797

FINAL REPORT

EXPERIENCED TEACHER FELLOWSHIP PROGRAM

Department of Industrial Education
Wayne State University
Detroit, Michigan 48202

Submitted by:

Dr. G. Harold Silvius
Project Director

September 1967 - June 1968

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FINAL REPORT

EXPERIENCED TEACHER FELLOWSHIP PROGRAM

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PREFACE

This report is based on the 1967-1968 Experienced Teacher Fellowship Program (ExTFP) in industrial arts and was supported by the U. S. Office of Education, as authorized under Title V, Part C, P. L. 89-399, Higher Education Act of 1965.

The project had the cooperation and support of the U. S. Office of Education, the Detroit Public School System, the Detroit area industries, and Wayne State University. This project was conducted from September, 1967 to June, 1968.

The ExTFP was designed to provide an opportunity for twenty-four industrial arts teachers to pursue graduate studies in two occupational clusters of the Galaxy Plan - (1) To become competent in those aspects of American industry which embrace Industrial Materials and Processes or Energy and Propulsion Systems, and (2) To develop, field test, and evaluate the curriculum materials needed for an application of these evolving technologies in the school systems.

The participants of this program represented twelve states. Each Fellow received a tax-free fellowship of $4,000 and a $600 stipend for each dependent.

The project staff acknowleges contributions of Dean J. W. Menge, College of Education, Wayne State University; Dr. Norman Drachler, Superintendent, Detroit Public Schools; Mr. Carl Turnquist, Divisional Director of Vocational Education, Detroit Public Schools; Dr. Paul Manchak, Assistant Chief, Program Review and Implementation Branch (East), USOE; Mr. Clifford M. VanBuskirk, Grants and Contract Officer, WSU; and the instructional staff who were associated with this project.

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PART I. INTRODUCTION

GENERAL DESCRIPTION

There is considerable agreement among industrial arts teachers that curriculum innovations and implementation are necessary to keep in focus with industrial development, processes, and problems. Since there has been little opportunity for practicing teachers to acquire the competencies and experiences to introduce newer industrial practices in the curriculum, this model program was developed. It was designed to upgrade and orient twenty-four teachers for a broad-base industrial arts program as is described in the Galaxy Approach. Emphasis was placed on two of the four major divisions, namely: (a) the Industrial Materials and Processes, or (b) Energy and Propulsion Systems. The Galaxy Approach for the World of Work program is now being advocated by Detroit and other public school systems for comprehensive high schools.

In an attempt to attain this overall purpose, six major objectives were developed to guide the program.

1. To provide selected teachers with in-depth courses in the evolving technical areas of Industrial Materials and Processes or Energy and Propulsion Systems.

2. To provide supporting short-term intensive instructional programs through industrial field experiences with selected industries and through the program at the WSU Applied Management and Technology Center.

3. To extend the participants understanding of the learning process so as to enable them to work more effectively with multiple-ability classes.

4. To provide participants an opportunity to become more familiar with the sociological factors that now need to be considered by educators in the urban schools.

5. To direct and assist the Fellows in developing course materials essential for the implementation of the two divisions of the Galaxy Approach that were under consideration.

6. To evaluate the adequacy and quality of preparation in the major area with consideration for:
   - technical competence.
   - teaching competence.
   - leadership development.

Basic Structure

This program was organized to provide for the fulfillment of the six specific objectives. To accomplish these objectives, the group of twenty-four Fellows were divided into two equal groups. Twelve Fellows specialized in the broad area of Industrial Materials and Processes, and the other twelve concentrated on the broad base of Energy and Propulsion Systems.

The courses included in the Plan of Work leading to a Master's degree are reported in Schedules 1 and 2. Of the eleven scheduled courses, eight were taken by the entire group. The field experiences (through IED 6170) and supporting (cognate) subjects were specifically related to the concentration for each group.

In addition, the professional core courses and the methods courses were taught on an *en bloc* arrangement and tailored to the needs of the Fellows. For example, in the true professional core courses special

	Major	Professional Core	Cognate
Fall Quarter	IED 7187 -- (4) IED 6170[a] -- (4)	EDP 7735 -- (3)	M E 0511 -- (4)
Winter Quarter	IED 6187[b] -- (8) IED 6170[c] -- (4)	EDS 7621 -- (3)	
Spring Quarter	IED 6185 -- (6) IED 7189[d] -- (4)	EGC 7701 -- (3)	M E 0616 -- (4)
	TOTAL 30	9	8

Schedule 1. -- Plan for Concentration in Industrial Materials and Processes.

	Major	Professional Core	Cognate
Fall Quarter	IED 7187 -- (4) IED 6173[e] -- (4)	EDP 7735 -- (3)	G B 0562 -- (4)
Winter Quarter	IED 6187[f] -- (8) IED 6170[g] -- (4)	EDS 7621 -- (3)	
Spring Quarter	IED 6185 -- (6) IED 7189[h] -- (4)	EGC 7701 -- (3)	M E 0616 -- (4) or an appropriate elective in non education

Schedule 2. -- Plan for Concentration in Energy and Propulsion Systems.

sessions were devoted to discussing the implication of these areas in industrial arts education. The methods and curriculum courses (IED 6187 and IED 6185) were especially planned for to equip the Fellows with the necessary instructional materials and methods for implementing the two occupational clusters in the Galaxy Plan. A new industrial education course (IED 6187) was conducted with time allocated for study, experimentation, development, and evaluation of materials produced through field testing in the Detroit Public Schools. Organizing Course Materials (IED 6185) was modified to provide greater student participation. Specifically, the Fellows had the responsibility of selecting and contacting guest lecturers who reported on several of the innovative curriculum projects in industrial arts. These presentations provided an opportunity for the Fellows to examine and evaluate what is now being advocated for industrial education by selected leaders throughout the nation.

The instructional program provided for joint activities with the representatives of industry, contacts at the WSU Applied Management and Technology Center, and work with selected teachers from the inner city schools in Detroit. The in-plant schools were used to strengthen the Fellows' technical background in current industrial practices. This was supplemented by formal courses at the Applied Management and Technology Center, and later this technical information was integrated into experimental units for instruction that was field tested in the Detroit

Public Schools.

Another aspect which had considerable impact on the program was the provision for a special study center. This facility was used for many formal and social activities. This area facilitated numerous professional discussions and provided an operational base for meetings, house parties, picnics, and the graduation banquet.

PRE-PROGRAM ACTIVITIES

A program of this type requires careful pre-planning and organization to insure its early success. From the development of the proposal to the arrival of the participants, the pre-planning activities must facilitate optimum operation and participant adjustment.

The Announcements of ExTFP

Three communications were prepared and circulated to teachers in industrial education. The first was a four page initial release which was mailed to persons expressing an interest in the ExTFP as a result of the announcement made by the U. S. Office of Education, Copies were also sent to department heads in the Detroit Public School System.

In addition, a descriptive flyer was mailed to members of various associations in industrial education and school administration. Both the initial release and the flyer were designed to provide early information concerning the program. The brochure which contained the Request for Application, was mailed also to members in the field of industrial education.

The number of copies and the distribution sources of the flyers and brochures were as follows:

1. 1,200 Flyers were printed and sent to:

195	National Council of Local Administrators
150	Local Principals and Superintendents of Secondary Schools
146	AVA Industrial Arts Division Directory of Committees and Committee Members
250	Industrial Teacher Education Directory
150	Sent to applicants
125	American Council of Industrial Arts Teacher Educators (ACIATE)
1,016	Total

2. 10,000 Brochures were printed and sent to:

5,500	Directors and Supervisors - Prakken Mailing List
1,068	Guild Mailing List
625	Applicants
700	Michigan Industrial Education Directory
150	ACIATE
350	Industrial Teacher Education Directory
250	MIES Convention
250	Miscellaneous mailing, handouts, and inter-department circulation
8,893	Total

Selection of Participants

The number of participants was limited to twenty-four with twelve teachers selected to concentrate in Industrial Materials and Processes while the remaining twelve concentrated in Energy and Propulsion Systems.

Participants were selected from applications received from all sections of the United States. There were 607 inquiries by mail, telephone, or in person. Application packets were sent to 544 teachers.

To process the 176 completed application forms, a screening committee chaired by Dr. Norman G. Laws was established. This six

member committee, with the assistance of the project staff, developed a qualitative and quantitative and quantitative evaluation instrument and check list.

The project staff used the ratings of the screening committee in their final selection of the participants and alternates. The nine regional classifications adopted by the U. S. Office of Education were grouped according to population, to form the seven regions for the project. This distribution is shown in Table I.

TABLE I

POPULATION BREAKDOWN OF REGIONAL SELECTION AREAS

Region	U.S.O. of Educ. Classification	Approximate Population*	Suggested Distribution	Final Distribution
1	I and III	27,802,000	2	2
2	II	36,426,000	3	3
3	IV	22,268,000	2	2
4	V	30,036,000**	2	3
5	VI and VIII	20,738,000	2	2
6	VII	26,303,000	2	1
7	IX	19,498,000	2	3
			15	16
Michigan	Part of IV		9	8

* Population figures are based upon the 1965 estimate by the Rand McNally Corporation.

** The population of Michigan was not included, since eight participants were to be selected from this area.

TABLE II

AREAS REPRESENTED BY THE EIGHT REGIONS

Regions	Areas
1	Connecticut, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, North Carolina, Puerto Rico--Virgin Islands, Rhode Island, Vermont, Virginia, and West Virginia.
2	Delaware, New Jersey, New York, and Pennsylvania.
3	Alabama, Florida, Georgia, Mississippi, South Carolina, and Tennessee.
4	Indiana, Illinois, Ohio, and Wisconsin.
5	Colorado, Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming.
6	Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.
7	Alaska, Arizona, California, Guam, Hawaii, Nevada, Oregon, and Washington.
Michigan (Part of 4)	

In addition to the twenty-four Fellows that were individually selected, another ten teachers were identified to serve as alternates. Only one applicant, Robert Grandits, because of family illness declined the Fellowship. Joseph A. Wagner, who was ranked as highest alternate, was accepted as the replacement. The names of the twenty-four selected Fellows appear in Appendix A.

Inquiries and Communication

To follow-up personal inquiries of the selected Fellows concerning questions related to housing, program organization, and the community, a staff member was assigned to coordinate and respond to these questions. Descriptive materials, news notes, and personal letters were helpful in orienting the Fellows to the proposed program. It was discovered, however, that the most serious problem encountered at this stage of the program was locating appropriate housing facilities for the participant and his family.

Local participants and early arrivals in Detroit assisted the staff, as did several other local agencies in arranging for the necessary accommodations for participants arriving just prior to the start of the project.

Orientation Meetings

The purpose of the orientation meeting was to provide the Fellows and their families an opportunity to visit socially other participants and staff. Ninety-six persons were present for this occasion which included families, departmental staff, and administrative representatives.

The participants were asked to evaluate this session with the objective of improving future orientation meetings for an ExTFP group. The general reactions to the initial stages of the program were highly positive. Holding such a session provides an opportunity for the staff to set the stage for the program during the first formal encounter and to get some impressions of participants' views and reactions to the

program.

Following the initial orientation program a briefing session was conducted to familiarize the Fellows and cooperating staff with the rationale, objectives, organization, and strategies for the operational aspects of the program.

The project staff were of the opinion that the informal social and the more formal meetings contributed to the successful beginning of the project. The exchange of ideas, and the answering of specific questions, fostered a better comprehension of the proposed program.

PART II. EVALUATION

INSTRUCTIONAL INNOVATIONS

The development, evaluation, and refinement of instructional materials, teaching techniques, and research projects were emphasized throughout the academic year for this project. Materials and techniques gained as a result of the industrial experiences also were given prominent attention.

There was a concerted effort to develop new materials resulting from broadening experiences through technical courses, industrial contacts, and teaching experiences in inner-city comprehensive high schools. As a result of technical courses related to a specific occupational cluster, such as high energy forming for the Fellows in Industrial Materials and Processes and energy sources for those in Energy and Propulsion, they were able then to infuse these new technical concepts into the instructional materials prepared for classroom purposes. For example, Joseph A. Wagner developed a unit on power and forms of energy. Orin L. Buchleiter constructed and tested a high energy forming device for material processing at the high school level.

Desirable outcomes stemming from the industrial contacts included a greater awareness of occupational information technological advances, and instructional methodologies employed by industry. This information was incorporated into the instructional materials developed for classroom purposes. The Fellows considered their industrial contacts to be

a very necessary and a desirable aspect of their technical and teaching competencies.

The experiences gained in both technical courses and industrial contacts served as the preparatory steps for the inclusion and development of instructional materials for classroom use. Newly developed materials were first field tested in micro-teaching situations, evaluated, and refined for classroom purposes. Selected critic teachers from the Detroit Public School System served to further refine the innovative materials.

Representative examples of materials developed as a result of these experiences in technical courses, industrial contacts, and the public schools were compiled into a "Take Home" package entitled, The Galaxy Plan in Industrial Education. This publication was designed to: (1) inform local administrators about the Galaxy Plan, (2) provide a nucleus of structured content and teaching guides with the two occupational clusters,and (3) provide available resource materials for the implementation of the Galaxy Plan.

The observations made concerning the values of the "instructional innovation phases" of this project were as follows:

1. Experiences in inner-city teaching situations provided the Fellows insights into the wide range of student ability and interest, and focused on the need for innovation instructional materials and teaching techniques.

2. The program provided the Fellows an opportunity for team teaching. This approach was found to be very practical and successful for teaching within a cluster concept. Also,

team teaching lends itself well to classroom situations where a wide range of pupil ability and interest exists.

3. The joint efforts of personnel from the Detroit Public Schools and the project staff strengthened the working relations and the cooperative spirit of the two institutions. This close liaison contributed to a more meaningful in-service experience for the Fellows.

4. The developed, evaluated, and refined materials made available by the Fellows,under the direction of the project staff,will hopefully extend the opportunity for implementing the Galaxy Plan in the Detroit Public Schools and in other school sytems.

UNIQUE FEATURES OF THE PROGRAM

The Experienced Teacher Fellowship Program was planned to include several unique features. Specifically these included the contributions of industry, the Detroit Public Schools, and the University.

The Role of Industry

The setting of Wayne State University in the hub of one of the world's largest concentration of industry was instrumental in the planning and development of this program. The program was enriched with the live issues of technological change. A number of WSU alumni in training divisions of these corporations facilitated close working relationships with industry. The staff took advantage of these close relationships in establishing contacts with industry so that the Fellows could work closely with leaders in industry. To illustrate, the Fellows were invited into several training schools normally not open to non-employees and gained invaluable insights into the philosophy of training as practiced in industry. They also observed many facets of diversified industries, including experiences in the automotive, fluid power, metallurgical, and numerical control industries. It was possible also for these teachers from the urban schools to comprehend the motivations and issues that exist within the manufacturing industries. Without such exposure to industry's priorities, the educator is unable to function properly as a guide or counselor to the youth who needs direction.

All of the Fellows had previous industrial experience but most discovered that extensive changes had occurred in the period that they had been away from their trade. This problem of the obsolescence of experience becomes paramount as technology emerges, and is one of the reasons for frequent revisitation to industry as a means of keeping current.

Beyond the mere updating of old skills, it was felt that emphasis must be placed on new skills to be acquired by the Fellows. To accomplish this, they were taught concepts of data processing, numerical control, fluid power, and other advanced technical material. In many cases, these emerging technologies are so dynamic that no texts are available. To illustrate, classes in industry are taught from loose-leaf engineering manuals, and often it is only the industrial training centers with adequate resources to teach in this advanced manner since the needed instruction is so close to the cutting edge of technological discovery.

In essence, the unique contribution of the Detroit area industries to the ExTFP was their cooperation in providing current technical instruction and materials, firsthand experiences on modern equipment, and contacts with personnel from industry.

The Role of the University

The project staff perceived their role to be one of infusing new concepts into the instructional program. While the Fellows were acquiring technical competence in one of the two occupational clusters, they were

developing skills also in research techniques, organizing course materials, and teaching methods.

This was accomplished through the combined efforts of the organizational divisions at WSU, including the College of Engineering, School of Business Administration, Department of Instructional Technology, Applied Management and Technology Center, and other professional education departments.

The involvement with these selected divisions of the University assisted in the achievement of goals that were established for the program. This was furthered through the cooperative planning and structuring of courses. A concerted effort was made to focus on current issues, instructional methods, and curriculum materials to implement the Galaxy Plan. The uniqueness of this approach was apparent in the creation of special courses and sections for the Fellows with personnel assisting from several of the organizational divisions of the University.

The Role of the Detroit Public Schools

The success of a venture such as the ExTFP is dependent also on professional resources that can be mobilized. Often an initial program has difficulty in attracting enough talent to achieve its goals. In this case, however, the expertise of the faculty was not solely relied upon to focus on the goals of the program. The presence of a large public school system in the immediate area of the University was indeed

one of the deciding factors in the decision to accept responsibility for operating the project. It was helpful that the Department enjoyed a close contact with the Detroit Public School System which had existed long before the initiation of the project. And, it proved to be significant that three members of the project staff were formerly employed by the Detroit Public Schools.

The unique contribution of the Detroit Public School System was that it provided an opportunity for the Fellows to field test newly developed instructional materials and to refine instructional methodologies. For example, a series of micro-teaching sessions involving local high school students, Fellows, and staff were scheduled prior to the implementation of the instruction in regular inner-city schools in Detroit.

THE STAFF

Over forty persons became directly involved with the administration and instructional functions of this project. The executive committee responsible for the administrative aspects of the program included the Director, Dr. G. Harold Silvius; the Associate Director, Mr. William D. Wolansky; Program Evaluator, Mr. Leslie H. Cochran; and Instructional Coordinator, Mr. John C. Comer. These staff members were also directly involved in the instructional phases of the project.

The twenty-four Fellows had the benefits of thirteen regular full-time staff members and approximately twenty part-time teachers. These staff members were responsible for the scheduled courses and sessions. Ten national leaders also supplemented the instructional program as guest lecturers.

The persons participating were selected because of their special expertise and interest in teacher education, particularly as this preparation relates to industrial education. The cooperation and concerted efforts among the project staff members aided greatly in the success that was achieved.

One of the important outcomes of the program resulted from a number of informal discussion sessions. Several professors scheduled additional periods with the entire group so that the Fellows could consider special problems. For example, in Educational Sociology, Dr. August Kerber involved the Fellows in three specific sessions at

which time they discussed the social issues of urban schools. Dr. Robert Wurtz devoted additional time blocks to the reviewing of literature and research related to occupational information. Dr. Karl Anderson of the Department of Mechanical Engineering provided additional laboratory time for experimentation, materials testing, and research.

The majority of the staff were selected prior to the start of the project, however, the Fellows were able to select some of the visiting staff members. This was another way of involving these Experienced Teachers in leadership development opportunities. The experience of the group was also utilized in providing special sessions directed by the Fellows on such topics as machinability of metals, non-destructive testing, and fluid power circuitry.

The enthusiasm and interest of the staff and Fellows were maintained as a result of the professional relationships that were fostered through group activities, team planning, seminar discussions, and informal meetings.

THE FACILITIES

A wide variety of laboratory facilities were deliberately utilized during the program. The choice of University, industrial, and public school laboratories combined was considered to be the most productive way to meet the specific objective of the program.

In the early phase of the program, the Fellows participated in courses conducted by industry in their in-plant laboratory facilities. The use of such facilities provided an opportunity for the Fellows to have "hands on" experiences on the most up-to-date equipment and materials. The group attending the General Electric Metallurgical Laboratory, for example, were able to do non-destructive testing on carbide cutters. The industrial organization of the in-plant laboratories was considered also by the participants to be extremely valuable in viewing the operation of industrial training programs.

The five industrial schools which the participants attended included: (1) Detroit Testing Laboratories, (2) General Electric Metallurgical School, (3) Vickers Hydraulics School, (4) Miller Fluid Power Institute, and (5) The Bendix Corporation School. In addition, the Fellows visited several Detroit area industries as scheduled plant tours.

The laboratory facilities of the University included the Computing and Data Processing Center, the Mechanical Engineering Laboratories, and the laboratories in the Department of Industrial

Education. Each of these were equipped to provide the technical background needed for the broad-based understandings and preparations essential for the implementation of the Galaxy Plan.

The study center provided exclusively for the Fellows use (Room 4, College of Education) supplemented the other laboratories. It was equipped with duplicating equipment, study carrels, a lounge, a library, a variety of audio visual aids and a cabinet containing a wide selection of supplies. The Fellows used this room extensively for the production of aids, class preparation, and demonstration-experimentation activities. This facility made it possible for the Fellows to meet in small groups and hold many informal discussions. They indicated that the provision of this center was a significant factor in the successful operation of the project.

In addition, the Fellows used the facilities of the Detroit Public Schools. Four inner-city schools were included and a total of eight shops became practical laboratories for the Fellows to field test the newly developed instructional materials. This arrangement with the Detroit Public Schools provided opportunities for the Fellows to participate in an on-going Galaxy Plan.

EXPERIENCED TEACHER FELLOWSHIP PROGRAM PARTICIPANTS

The success of an Experienced Teacher Fellowship Program depends, to a large degree, upon establishing a favorable learning environment. The most significant factor which influenced the outcomes of this program was the provision for en bloc scheduling of formal and informal learning experiences. There had been no precedent in the Department of Industrial Education for this procedure at the graduate level, but it was found to be very stimulating to both staff and Fellows.

It was stated earlier in this report that provision was made for the entire group to participate in eight scheduled classes. In addition, the interaction and involvement of joint planning by the Fellows and project staff contributed to the esprit de corps that was generated. From the staff's viewpoint, it meant that planning could be more effective regardless of whether the activity involved a social event, a special class presentation, a field trip, or some other planned activities. This camaraderie was typical of activities planned as joint ventures. It was often difficult to see where the work of the students left off and that of the staff began. For example, during the Winter Quarter the Fellows requested that they be allowed to set the format and run a course for the final Quarter. They arranged for the guest speakers, from all over the country, and then spent every Wednesday of the Quarter in all-day sessions with these industrial education leaders. The proceedings of each of these sessions with the

selected leaders were recorded on video tape by the Fellows and a critique of each presentation was written and circulated to the staff for editorial purposes. The tapes are now a part of the new information retrieval system at WSU. All this was accomplished with joint student and staff effort.

During the academic year this en bloc treatment resulted in a strong group feeling which has been planned to be continued. This is illustrated by projected plans by the Fellows for the publication of a biannual newsletter and plans for conference meetings at regional and national conventions.

Social-Professional Relations

As a part of joint planning, representatives from the ExTFP were invited to attend scheduled staff meetings. This arrangement provided an opportunity for the Fellows to report and discuss pertinent issues with the staff. Problems, decisions, and planned action were recorded in the meeting minutes. These were circulated to both staff and Fellows.

Another important aspect of maintaining close working relationships between the staff and Fellows was the designation of one staff member, Leslie H. Cochran, who served as liaison to the group. This arrangement facilitated interaction, feedback, and a concurrent appraisal of the project's progress.

Fellows were encouraged to participate in as many professional functions as could be worked into their schedule. For example, they

were active in the planning and carrying out of the Second Annual Industrial Education Conference at WSU. Several members made presentations at the Michigan Industrial Education Society Convention. A team of Fellows also assisted with the audio-visual utilization for the American Personnel and Guidance Association Convention in Detroit. Provisions were made for the Fellows to attend the American Vocational Association Convention in Cleveland and the American Industrial Arts Assocation Convention in Minneapolis.

Beginning with the orientation session and continuing throughout the year, social functions were scheduled for the group. John C. Comer served as the staff representative to encourage and help coordinate such activities. These social functions included house parties, picnics, dinners, group outings, and a final graduation banquet. These functions contributed greatly to the morale of the Fellows and their families.

RELATIONS WITH OTHER AGENCIES

A pilot project, such as the ExTFP in industrial arts, required the cooperation and close working relationships with several agencies. In addition to the community resources, the U. S. Office of Education, the major divisions of the University, and the staff of the federally supported ExTFP at Wisconsin State University at Platteville, Wisconsin, assisted the WSU staff in conducting this project.

U. S. Office of Education

The scheduled meeting of new and previous ExTFP directors to discuss the problems of conducting such projects proved to be very helpful. This exchange of ideas helped the staff to avoid many of the pitfalls and to be better prepared to deal more effectively with the administrative aspects. The general leadership by Donald Biglow and that of the divisional representative, Paul Manchak, were of considerable value, especially in the early phase of the project.

The cooperation and prompt response by Dr. Manchak's office in terms of expediting the releases and forms aided the project staff to meet all deadlines. There was a lack, however, in response to the change in the number of dependents. The Director and staff found that there was a reasonable amount of paper work involved. Aside from regular correspondence, there were only two major written reports required.

The working relationship with personnel from the U. S. Office of

Education was also enhanced by their accessibility to the project staff. It was helpful, for example, for the staff to visit with personnel representing the U. S. Office of Education via the telephone, at workshops, and at national conventions.

The University

Beginning with the announcement of the ExTFP grant award and continuing through the conclusion of the project, the administration at WSU offered their enthusiastic interest and support. This was demonstrated through their willingness to provide a special facility for the project, active participation in scheduled events, and institutional support.

The staff members invited to participate in the project were encouraged to do so by their department heads throughout the University. The working relationships with these very competent staff members were extremely satisfying.

Two administrative divisions of the University became directly involved in the project. These were the Grants and Contracts Office and the Accounting Office. The support and advice from the personnel of these Offices were most helpful to the staff in conducting this instructional program. As a result of a series of meetings between the project staff of this and other federal research projects at WSU, modifications in the University accounting procedures for research projects were made. These improved procedures will facilitate even

better working conditions with the Accounting Office in other funded projects.

Ccoperation with Industrial Arts ExTFP (Platteville)

The project staff decided that it would be beneficial to establish a close working relationship with the other industrial arts ExTFP at Wisconsin State University at Platteville, Wisconsin. Staff members from both projects met on several occasions at national conventions to discuss and compare problems and their progress with the program.

This resulted in an exchange of ideas, continued communication, an exchange of materials, and a visit to the Platteville campus by several of the staff and Fellows.

The overall cooperation, support, and continued interest of personnel from all agencies contributed significantly to the success of the program. The experiences gained by the project staff as a result of this year's program will be of considerable value in strengthening relationships within the community, with other agencies, and will in turn improve future programs.

INDUSTRY: SUPPORT AND COOPERATION

The cooperation of industry was sought prior to the planning of the proposal for the Experienced Teacher Fellowship Program. Wayne State University, located in the heart of an industrial metropolitan center, has developed extensive liaison and interaction with many of the industrial plants.

The following arrangements were made with industries in the area to enrich the ExTFP: Tours of plants were arranged to study the problems of management, production, and labor which related to "Industrial Materials and Processes" or "Energy and Propulsion Systems". These tours were arranged with the management and technical personnel with specific requests for viewing and discussing industrial aspects pertinent to the ExTFP.

It was observed that when specific requests were made and technical personnel were involved, that the outcomes of such tours were considerably enhanced.

Tours were made to the following plants:

General Motors Diesel	Vickers Incorporated
Bell Telephone Company	Pontiac Motors
Chrysler Corporation	Ford Motor Company
General Electric Company	Scans Associates Incorporated
Flick-Reedy Corporation	Monarch Machinery

Another arrangement made with the industries provided for the use of their plant schools to provide field experiences for technical development. As mentioned before, four plant schools were involved in providing formal

technical courses for this program. The Fellows concentrating in Industrial Materials and Processes went to The Bendix Corporation Plant School for two weeks to study numerical controls and to General Electric for a one week metallurgical course. The other group of twelve Fellows specializing in Energy and Propulsion Systems went to the Vickers Hydraulics School for two weeks and to the Miller Fluid Power Institute for one week.

The most significant contributions made by these plant schools to the ExTFP were that the Fellows: (1) received up-to-date instruction in the respective technology from practitioners of industry; and (2) had an opportunity to study with sales personnel, servicemen, technicians, engineers, and management which permitted them to exchange ideas and occupational information.

The third arrangement with industry employed in this program was the provision to bring experts and consultants from the Detroit area to perform demonstrations and make presentations.

Specialists from Technical Education and Manufacturing (TEAM), Inc., Rosean Filter Co., and Vickers, Inc. were invited to make demonstrations on new laboratory equipment and to make presentations on technical topics.

Industry contributed components for laboratory use, replaced old equipment with new models, display panels, and numerous technical reports which were requested. Approximately 1300 pamphlets, technical reports, and bulletins were distributed to the group.

Members from the Fluid Power Society were invited to speak to the

ExTFP class and student memberships were made available to the participants.

A one day symposium was conducted for purposes of examining and discussing the needed laboratory equipment and instructional materials for the two occupational clusters under consideration in the project. Representatives from TEAM, Broadhead-Garrett, and McKnight & McKnight Publishing Company participated in this symposium.

The graduation banquet for the Fellows was co-sponsored by industry and funded by Mac Valve, Inc., Miller Fluid Power Institute, Vickers, Inc., and the Detroit No. 1 Chapter of the Fluid Power Society.

The continuing and on-going spirit of cooperation as represented in the mutual efforts of industry with the Department of Industrial Education at WSU were very apparent to the participants as they became involved in the many activities of the program.

It is estimated that industry contributed approximately $3,000 in equipment, components, and instructional supplies to the program. More important than the direct monetary contributions, were the contacts with the industrial consultants, opportunity for informative tours, and the genuine interest that members from industry took in making this program effective and successful.

CONCURRENT EVALUATION

The purpose of the concurrent evaluation was to acquire feedback from the Fellows and faculty in order that appropriate changes could be made to fulfill the objectives of the program. To accomplish this task Leslie H. Cochran was responsible for this phase of the project.

The two major roles of the project evaluator were: (1) develop the necessary instruments for objective assessment of the on-going project, and (2) maintain close personal liaison with the Fellows. Of the two roles, the maintaining of these close personal contacts and communications proved to be the more important. Since the evaluator was not directly responsible for instructional aspects of the program, the Fellows were more free to discuss problems and make suggestions for improvement of the program. This open dialogue between staff and the Fellows contributed to the constructive modifications made in the operational plan.

The evaluative instruments were designed to acquire information concerning the evaluation of formal activities. These instruments were used following the particular activity, and included the rating of pre-planning activities, the orientation and briefing sessions, field trips, faculty assessments, and midterm and quality evaluations by the Fellows. For example, in the orientation and briefing instruments the Fellows were asked to respond to specific items related to the structuring

and organization of the program.

Periodically, the participating faculty were invited to make assessments of the program's development in respect to individual performance and achievement. The participants were also asked to appraise how and to what extent they were achieving the stated objectives of the program. These biquarterly evaluations were examined, discussed in staff meetings, and the necessary changes were incorporated.

Bimonthly project staff meetings were held to discuss problems and plan the strategies for the on-going program. Representatives from the Fellowship groups were invited to participate in these meetings, and to jointly plan future sessions and group involvement. Attendance at these meetings by the Fellows, facilitated a more active role and responsibility for the success of the program. Having the Fellows assume this active role enabled them to share the organizational difficulties and help promote means for finding constructive solutions.

This joint appraisal and planning by the staff and participants was considered to be essential in a program for experienced teachers. Such leadership development opportunities became more prevalent as the program progressed. This was evidenced particularly in the last Quarter when the Fellows assumed the major responsibility for the seminars with the national industrial education leaders.

PART III. CONCLUSIONS

THE PROGRAM IN RETROSPECT

The evaluation of innovative programs planned and conducted for the first time reveals the strengths and the weaknesses of the program. Both formal and informal methods of assessment should be relied upon to detect the successes and failures of the project. Appraisals by the Fellows, project staff, and instructional staff were used throughout the year to determine the effectiveness of the program. Evaluative instruments, periodic reports, and discussions were employed in this task.

Desirable Outcomes

The most important factor which contributed to the success of the program was the concept of *en bloc* treatment. It was observed that the specially assigned learning center facilitated group discussion, instruction, and effort in conducting the formal and social activities. As a result of the *en bloc* treatment, the participants developed a cohesiveness and team spirit in their approach to the assigned tasks.

The central focus in the organizational structure of the program was to provide the participants with an opportunity for personal involvement and leadership development. For example, the Fellows planned and conducted the Second Annual Industrial Education Conference at WSU, as well as the curriculum development sessions. In the latter, they selected, invited, and hosted eight national leaders in industrial

education. Their participation in other professional activities, such as attending state and national conventions, contributing articles to professional journals, and publishing a special issue of the Industrial Education Guild News at WSU, all reflect the nature of their personal involvement.

From the outset of the program a team approach was used to utilize the strengths of the staff and Fellows. The enthusiasm generated by this team approach contributed to stimulating discussions, critical evaluations, and quality of instruction. For example, near the end of the program, the participants provided technical demonstrations for the benefit of other participants and staff. Another example of this team approach was the provision for a workshop which was devoted to discussing instructional resources and equipment. The team included representatives from business, industry, and education.

To assist the Fellows in implementing the Galaxy Plan, a "Take Home Package" was developed. The two purposes of this booklet were to: (1) inform local administrators of the nature and operational organization of the Galaxy Plan, and (2) provide the teacher with resource materials for conducting the program.

Operational Problems

In a project of this nature, even with the pre-planning by the project staff, several operational problems were encountered. The nature of the problems were such that they required sensitivity on the part of the project staff in identifying them, and then attempting to resolve the issues.

As could be expected in an urban university, the problem of locating suitable housing became a major issue, especially when it is not possible to arrange accommodations in advance of the participants' arrival. Initial contacts with local housing agencies were made by the project staff to facilitate housing. Local participants and those who arrived early were encouraged also to assist Fellows and their families with their needs for housing, as they arrived in the Detroit area.

Housing was perhaps the most critical problem in the early phase of the project. When the participants were located, arrangements were made for the families to meet socially. These social meetings encouraged friendly interaction and support.

Other problems resulted from University administrative practices. These problems did not affect the Fellows directly but were of concern to the project staff. The increased federally funded research projects under way at WSU have created a need for the restructuring of administrative policies and procedures concerned with research grants and accounting.

Accounting procedures were revised to facilitate record keeping and operational budgets. The unforeseen increase in tuition fees, also, reduced the financial resources that were allocated for participant support. Another problem encountered during the early stages of the program was that of locating parking spaces for the Fellows. By using car pools, it was possible to accommodate them in the faculty lots.

A common problem confronting the project staff was dealing with psychological adjustments of the participants. Reorientation problems posed by a change of residence, friends, and the role of a teacher to a full-time graduate student resulted in considerable pressures.

The staff soon recognized that they needed to give attention to these matters. Individual conferences were arranged and a staff member was assigned the responsibility for assisting participants with their personal difficulties. It helped, also, to have the Fellows involved in planning sessions and staff meetings.

Observations

The important observations made in the total operation of this program were: (1) that the en bloc treatment provided for group identification and cohesiveness, and also, enabled the staff to schedule tailor-made courses to meet the needs of the group; (2) the provision for leadership development opportunities stressed throughout the program contributed significantly to the participants' professional growth and

development; and (3) the interest and cooperation of the local schools, industries, and the administration of the University contributed significantly to the success of the program.

The purposes of the program were accomplished through the combined efforts of the project staff, participants, and community resource personnel. Establishing a good esprit de corps early in the program strengthened the operational base of the program. The participants' constructive and enthusiastic attitudes became cumulative as the program progressed and in turn were instrumental in improving the instructional program. As the program got under way, there was increased emphasis placed upon the utilization of the participants' experiences and competencies. This diversified background and the exposure to a wide variety of academic and industrial experiences during the program strengthened their industrial perspective.

As a result of the experiences gained from conducting this Experienced Teacher Fellowship Program, the following changes have been planned for the Fellows who will be participating in the 1968-69 ExTFP at Wayne State University in industrial arts:

1. Prior to the formal sessions, a two week period specifically directed to the orientation of participants and their families to campus and community life has been planned.

2. Participants will be involved in the school and industrial contacts as early as possible to equip them with the necessary background and insights for development of curriculum materials.

3. A staff member has been assigned to the task of coordinating the orientation phase and to be particularly sensitive to the Fellows' needs and problems. This staff representative will be expected to follow up this responsibility throughout the year, and not be too directly involved in classroom instruction and evaluation.

4. Greater focus will be placed on the development and field testing of instructional materials, so the newly acquired concepts can be integrated into experimental and on-going programs.

APPENDIX A

This Appendix includes the following information:

APPENDIX

A - 1 Experienced Teacher Fellowship Program Participants

A - 2 Evaluation and Screening Forms

A - 3 Data from Measurement Research Center of Iowa

A - 4 Publicity Brochures

A - 5 Staff Directory

APPENDIX A - 1

Experienced Teacher Fellowship Program Participants

Name and Home Address	Pre-Program School Address	Post-Program School Address
Robert Aronson 14944 Mark Twain Detroit, Michigan 48227	Mumford High School 17525 Wyoming Avenue Detroit, Michigan 48221	Mumford High School 17525 Wyoming Avenue Detroit, Michigan 48221
Victor Bridges P. O. Box 178 Chico, California 95932	Chico Senior High School The Esplanade Chico, California 95932	Chico Senior High School The Esplanade Chico, California 95932
Orin L. Buchleiter 4217 Douglas MacArthur, N.E. Albuquerque, New Mexico 87110	Taylor Middle School 8200 Guadalupe Tr. N. W. Albuquerque, New Mexico 87114	Taylor Middle School 8200 Guadalupe Tr. N. W. Albuquerque, New Mexico87114
Carl W. Butler P. O. Box 181 Howland, Maine 04448	Penobscot Valley High School Howland, Maine 04448	Consultant for the State of Maine in Industrial Arts, Augusta, Maine 04330
William H. Carson 2223 Hurst Street Columbia, South Carolina 29203	Booker T. Washington High 530 Marion Street Columbia, South Carolina 29205	Booker T. Washington High 530 Marion Street Columbia, South Carolina 29205
Terry L. Davis 16806 Delaware Avenue Lakewood, Ohio 44107	Emerson Junior High 13439 W. Clifton Blvd. Lakewood, Ohio 44107	Emerson Junior High 13439 W. Clifton Blvd. Lakewood, Ohio 44107
William W. Davison 305 Jackson Hugoton, Kansas 67951	Hugoton High School 115 W. 11th Hugoton, Kansas 67951	Hugoton High School 115 W. 11th Hugoton, Kansas 67951
Edwin A. Gray 2124 N. 7th Street Terre Haute, Indiana 47804	Mid-West School of Technology 318 Apple Avenue Muskegon, Michigan 49442	Indiana State University School of Technology Terre Haute, Indiana 47809

APPENDIX A - 1

Experienced Teacher Fellowship Program Participants

Name and Home Address	Pre-Program School Address	Post-Program School Address
Orville C. Haan 6723 12th Avenue Jenison, Michigan 49428	Lee High School 1335 Lee Street Wyoming, Michigan 49509	Lee High School 1335 Lee Street Wyoming, Michigan 49509
Richard F. Hornchek 406 McClellan Avenue Trenton, New Jersey 08610	Ewing High School 900 Parkway Avenue Trenton, New Jersey 08618	Ewing High School 900 Parkway Avenue Trenton, New Jersey 08618
Eugene J. Kirby 172 Mt. Vernon Street Arlington, Massachusetts 02174	East Boston High School White Street East Boston, Massachusetts 02128	East Boston High School White Street East Boston, Massachusetts 02128
Edward R. Lee 1217 Donald Royal Oak, Michigan 48073	Warren High School 5460 Arden Warren, Michigan 48092	Warren High School 5460 Arden Warren, Michigan 48092
Kenneth R. McLea 123 Miramar Avenue San Francisco, California 94112	Mission High School 3750-18th Street San Francisco, California 94116	Mission High School 3750-18th Street San Francisco, California 94116
Howard N. Mose 9620 Highland Road Pontiac, Michigan 48054	Cadillac Junior High 15125 Schoolcraft Detroit, Michigan 48227	Cadillac Junior High 15125 Schoolcraft Detroit, Michigan 48227
Edwin Lyman Munford P. O. Box 26 Parowan, Utah 84761 (Please forward)	College of Southern Utah Cedar City, Utah 84720	College of Southern Utah Cedar City, Utah 84720
John P. Novosad 19325 Rock Roseville, Michigan	was not employed by a school system	not definite at this time
Thomas P. Olivo 169 Rosemont Street Albany, New York 12206	Roy C. Ketcham High School Meyers Corners Road Wappingers Falls, New York 12590	California State College at Long Beach Industrial Arts Department Long Beach, California 90801

APPENDIX A - 1

Experienced Teacher Fellowship Program Participants

Name and Home Address	Pre-Program School Address	Post-Program School Address
Lester Paige 1583 McCallie Blvd.,N.W. Atlanta, Georgia 30318	Carver Vocational School 1275 Capitol Avenue, S.W. Atlanta, Georgia 30315	Carver Vocational School 1275 Capitol Avenue, S.W. Atlanta, Georgia 30315
John C. Ruppert 2999 Riverside Drive Pomona, California 91766	Ganesha High School 1151 Bellevue Pomona, California 91766	Ganesha High School 1151 Bellevue Pomona, California 91766
Luther E. Saunders 18100 Ohio Detroit, Michigan 48221	Burt Junior High School 20710 Pilgrim Detroit, Michigan 48223	Central High School 2425 Tuxedo Detroit, Michigan 48206
Robert L. Serenbetz 217 Delaware Road Kenmore, New York 14217	Garden City Senior High School Cathedral Avenue Garden City, New York	State University College of New York Buffalo, New York 14222
George T. Seriguchi 8045 Randy Drive Westland, Michigan 48135	Skills Training Center Detroit, Michigan	California State College at Long Beach Industrial Arts Department Long Beach, California 90801
Roger A. Vicroy 406 Wayne Avenue Pitman, New Jersey 08071	was not with a school system. was employed by the Battelle Memorial Inst. Columbus, Ohio	Glassboro State College Industrial Arts Department Glassboro, New Jersey 08028
Joseph A. Wagner 619 W. Jackson Macomb, Illinois 61455	Bucyrus High School 245 Woodlawn Bucyrus, Ohio 44820	Western Illinois University Industrial Arts Department Macomb, Illinois 61455

APPENDIX A-2

EVALUATION ROSTER

Dr. G. Harold Silvius, Project Director
Address: 201 East Kirby, Detroit, Michigan 48202
Phone: 872-7776

William D. Wolansky, Associate Director
Address: 3785 Brewster Road, Dearborn, Michigan 48201
Phone: 582-3878

Leslie H. Cochran, Executive Secretary, Executive Secretary
Address: 9216 Prevost, Detroit, Michigan 48228
Phone: 838-8169

Glen Piper, Team A, Chairman
Address: 3327 Winterfield, Warren, Michigan 48092
Phone: 756-1570

Robert Henderson, Team A, Evaluator
Address: 9639 West Parkway, Detroit, Michigan 48239
Phone: 531-6057

Andrew Mazzara, Team A, Evaluator
Address: 7047 Mead Ave., Dearborn, Michigan 48126
Phone: 582-5862

Dr. Norman G. Laws, Team B, Chairman
Address: Department of Industrial Education, University of Minnesota, Duluth, Duluth, Minnesota 55812
Phone: 724-8801

Ferd Hall, Team B, Evaluator
Address: 16645 Baylis Avenue, Detroit, Michigan 48221
Phone: 862-9172

John Takis, Team B, Evaluator
Address: 13122 Elgin, Huntington Woods, Michigan
Phone: 547-0935

APPENDIX A - 2

EVALUATION AND SCREENING FORMS

Date: March 29, 1967

Time: 7:30 - 10:30 p.m.

Place: 214 College of Education

Participants: Dr. G. Harold Silvius, Project Director; William D. Wolansky, Associate Project Director; Leslie H. Cochran, Executive Secretary; Norman G. Laws, Team B Chairman; Ferd Hall, Evaluator; and John Takis, Evaluator.

The meeting was called to review, discuss , and modify the evaluation screening instrument. A reassessment of the instrument helped to distinguish the two major categories, namely, the qualitative (items E-H) and the quantitative (items A-D)

It was decided that team A would evaluate the quantitative items, while Team B would evaluate the qualitative. Dr. Silvius suggested that the final selection of the candidates would be made by the Director, Associate Director, and the two Team Chairmen. Leslie Cochran, the executive secretary, indicated that consideration must be given to the regional distribution of the Fellows.

Norman G. Laws, chairman for the session, provided the leadership for the reassessment of the point distribution which was agreed to by all members present.

It was decided that a check list would be placed inside each Fellow's folder and that the evaluation instruments would be complete on or before April 17 which was also the day set aside for the meeting of both evaluation teams.

Enclosed are the revised forms resulting from the discussion at the meeting.

Respectfully submitted,

Leslie H. Cochran

cc: G. Harold Silvius
Robert Henderson
Andrew Mazzara
Glen Piper

APPENDIX A - 2

CHECK LIST*

_____1. 2.6 HPA minimum (undergraduate)

_____2. Evidence of letter of teaching commitment

Team A	Rec.	Eval.	Team B	Rec. Eval.
A. Transcript			E. Auto-biography	
B. Transcript			F. Auto-biography	
C. Transcript			G. Recommen-dations	
D. NDEA Application				
Autobiography				
A - D Completed			E - G Com-pleted	

*Secretary will check (in received column) when the materials are in the folder and will request needed materials if the folder is incomplete. Secretary should also check (items 1 and 2) to make sure that the candidate has a 2.6 minimum HPA, and a letter of teaching commitment. (if HPA is lower than 2.6, she should indicate candidate's HPA in space to left of #1.)

Evaluation Team members will check the evaluated column as they complete the assignment in the given category.

**A "p" in received column indicates that item is partially completed.

APPENDIX A-2
FELLOWSHIP ANALYSIS FORM
EXPERIENCED TEACHER FELLOWSHIP PROGRAM

TEAM A REGION_____ _____

NAME_____ GALAXY_____

Qualification Categories — Points

A. Overall Honor Point Average
(undergraduate-taken from transcript)
(A=4, B=3, _____x 8 = 0 - 32

(32 possible) _____

B. Upper Division Honor Point Average
(last two years of undergraduate work)
(taken from transcript)

_____ x 4 = 0 - 16

(16 possible) _____

C. Supporting and Related Work

	Number of Courses (4 max.)
Mathematics	____(4 max.)
Physical Science	____(4 max.)
Professional Courses in IA	____(3 max.)
Industrial School Experiences	____(2 max.)
Workshop and Institutes (in IE)	____(2 max.)

Content Courses:
Materials and Processes ____(5 max.)
or
Energy and Propulsion

Total Courses ____

Conversion Table:

15 - 20 Courses	= 10 points
12 - 14 Courses	= 7 points
9 - 11 Courses	4 points
6 - 8 Courses	= 2 points

(10 possible) _____

D. Nature and Extent of Teaching Experience

Years - IA teaching	Years - High School IA
3 or more - 5 points	3 or more - 5 points
2 years - 3 points	2 years - 3 points
1 year - 1 point	1 year - 1 point

Sub Total_____ + Sub Total ____

(10 possible) _____

Team Chairman_____

APPENDIX A - 2

FELLOWSHIP ANALYSIS FORM
EXPERIENCED TEACHER FELLOWSHIP PROGRAM

TEAM B GALAXY_____

NAME_____ REGION_____

Points

Qualification Categories:

E. Nature and Extent of Industrial Work Experience

1. Length of Service in Industry
   5 or more years = 4 points
   2 - 4 years = 2 points
   1 year = 1 point
2. Applicability of Industrial Experience to Galaxy 0 - 6 points

(10 Possible)

F. Ability in Written Communication

1. Ability to Express Ideas 0 -10 points ____
2. Mechanics of Writing 0 - 3 points ____
3. Publications 0 - 2 points ____

G. Potential for Teaching and Leadership (15 possible)

Recommendations

Strong = 4
Good = 3
Average = 2
Poor = 0 - 1

(4 possible)

H. Other Qualifying Characteristics

Professional Memberships
Leadership Activities
Significant Contributions 0 - 3 points

Comments:_____

_____

_____

(3 possible)

Team Chairman_____

U. S. OFFICE OF EDUCATION
Division of Educational Personnel Training
(FY 1967 Programs)

STATISTICAL REPORT

XX on Participants (N= 24)
on Non Enrolled Applicants (N=)

NDEA Institute
Arts & Humanities
XX Experienced Teacher Fellowship Program

Institution: WAYNE STATE UNIVERSITY
Subject Field: INDUSTRIAL ARTS
State Code: MICH Or Co. No. 16-38
Director: DR. G. HAROLD SILVIUS

1. SEX:

Male	Female	NR
24		

2. AGE:

under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 & over	NR
1	5	7	3	4	2		1		1

3. HIGHEST DEGREE:

None	Professional Diploma
23 Bachelor's	Doctor's
1 Master's	NR

4. MAJOR IN SUBJECT FIELD*:

	Yes	No	NR
a. Undergraduate:	14		10
b. Graduate:	3	11	10

5. ATTENDED ONE OR MORE PREVIOUS NDEA OR ARTS & HUMANITIES INSTITUTES:

Yes	No	NR
	24	

6. YEARS OF TEACHING OR RELATED EMPLOYMENT:

	None	1-4	5-9	10-14	15-19	20 or more	NR
a. Total years		8	9	3	3	1	
b. Years in field*		10	4	4	3	3	

7. PRESENT EMPLOYMENT (at the time of application):

- 19 In a single school (secondary, elem., or pre-school)
- 1 In a number of schools, or at the system level
- 1 Employed by an institution of higher education
- Full-time college student
- 1 Not employed at (or attending) a school or college
- 2 NR

IF UNABLE TO USE [illegible] NDEA, OR COEP, for items 8, 9, 10, & 11:

8. TYPE OF SCHOOL, SYSTEM, OR COLLEGE:

- 22 Public
- Private, church related
- 1 Private, not church-related
- 1 NR

9. ENROLLMENT of a single school:

1-199	800-999	1600-1799
2 200-399	1000-1199	1 1800-1999
1 400-599	7 1200-1399	2 2000 & over
3 600-799	2 1400-1599	3 NR

10. PRESENT ASSIGNMENT: PER CENT OF TIME SPENT AS A TEACHER AND/OR SPECIALIST IN THE SUBJECT FIELD * OF THE INSTITUTE OR PROGRAM:

1 0%	20-29%	50-59%	80-89%
1-9%	30-39%	60-69%	22 90-100%
1 10-19%	40-49%	70-79%	NR

11. GEOGRAPHIC DISTRIBUTION OF SCHOOL, SYSTEM, OR COLLEGE:

3 CAL	1 N J	1 NR
1 GA	1 N M	
1 KANS	2 N Y	
1 ME	3 OHIO	
1 MASS	1 S C	
7 MICH	1 UTAH	

IF UNABLE TO USE [illegible] LEVEL, for items 12, 13, & 14:

12. LEVEL OF SCHOOL OR SYSTEM:

- Preschool
- Pre-school & elem.
- Elementary
- 3 Junior High
- 12 Senior High
- 4 Junior/Senior High
- 1 Elem. & secondary
- 4 NR

13. LOCATION OF SCHOOL OR SYSTEM:

- 9 In a city of 250,000 or more population
- 2 In a suburb of such a city
- 2 In a city of 50,000 to 250,000 population
- 1 In a suburb of such a city
- 7 In a city or town of 2,500 to 50,000 population
- In a suburb of such a city or town
- 1 In a city or town of less than 2,500, or in a rural area
- 2 NR

14. STUDENT BODY OF SCHOOL IN TERMS OF (A) PER CENT OF NON-WHITE AND (B) PER CENT FROM FAMILIES MARKED BY ECONOMIC POVERTY:

A. Non-white		B. Poverty	
3 0%	1 50-59%	2 0	1 50-59%
8 1-9%	1 60-69%	6 1-9%	60-69%
3 10-19%	70-79%	8 10-19%	1 70-79%
1 20-29%	1 80-89%	1 20-29%	1 80-89%
30-39%	3 90-100%	30-39%	2 90-100%
40-49%	3 NR	40-49%	2 NR

* In the subject field of the institute or Program

NR means non-response; this category may include inaccurate or impossible responses.

BEST AVAILABLE COPY

U. S. OFFICE OF EDUCATION
Division of Educational Personnel Training
(FY 1967 Programs)

STATISTICAL REPORT

on Participants (N=_____)
XX on Non-Enrolled Applicants (N=138)

NDEA Institute
Arts & Humanities
XX Experienced Teacher Fellowship Program

Institution: WAYNE STATE UNIVERSITY
Subject Field: INDUSTRIAL ARTS
State Code: MICH Of Code: 16-38
Director: DR. G. HAROLD SILVIUS

1. SEX:

Male	Female	NR
135	2	1

2. AGE:

under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 & over	NR
10	28	38	31	16	9	3	2		1

3. HIGHEST DEGREE:

None	2 Professional Diploma
116 Bachelor's	Doctor's
19 Master's	1 NR

4. MAJOR IN SUBJECT FIELD*:

	Yes	No	NR
a. Undergraduate:	72	5	61
b. Graduate:	26	51	61

5. ATTENDED ONE OR MORE PREVIOUS NDEA OR ARTS & HUMANITIES INSTITUTES:

Yes	No	NR
7	131	

6. YEARS OF TEACHING OR RELATED EMPLOYMENT:

	None	1-4	5-9	10-14	15-19	20 or more	NR
a. Total years:		36	45	31	19	7	
b. Years in field*:	2	37	50	24	15	5	5

7. PRESENT EMPLOYMENT (at the time of application):

124 In a single school (secondary, elem., or pre-school)
4 In a number of schools, or at the system level
7 Employed by an institution of higher education
Full-time college student
Not employed at or attending a school or college
3 NR

IF EMPLOYED IN A SCHOOL, SYSTEM, OR COLLEGE (see Items 8, 10, or 11):

8. TYPE OF SCHOOL, SYSTEM, OR COLLEGE:

133 Public
2 Private, church-related
2 Private, not church-related
1 NR

9. ENROLLMENT of a single school:

2 1-199	20 800-999	5 1600-1799
12 200-399	14 1000-1199	5 1800-1999
17 400-599	12 1200-1399	18 2000 & over
12 600-799	11 1400-1599	10 NR

10. PRESENT ASSIGNMENT: PER CENT OF TIME SPENT AS A TEACHER AND/OR SPECIALIST IN THE SUBJECT FIELD * OF THE INSTITUTE OR PROGRAM:

0%	20-29%	50-59%	90-100%
1-9%	30-39%	60-69%	114
10-19%	40-49%	70-79%	3 NR

11. GEOGRAPHIC DISTRIBUTION OF SCHOOL, SYSTEM, OR COLLEGE:

1 ALA	1 FLA	4 KANS	1 MISS	2 N M	1 S D	1 WYO
3 ALAS	1 GA	3 LA	1 MO	7 N Y	1 TENN	1 GUAM
16 CAL	2 HAWA	1 ME	1 MONT	1 N C	3 TEX	7 NR
2 COLO	3 ILL	4 MD	2 NEBR	3 OHIO	1 UTAH	
3 CONN	4 IND	1 MASS	1 N H	16 PA	4 WASH	
1 D C	1 IOWA	23 MICH	5 N J	1 S C	4 WIS	

IF EMPLOYED BELOW THE COLLEGE LEVEL (see Items 12, 13, & 14):

12. LEVEL OF SCHOOL OR SYSTEM:

1 Pre-school
Pre-school & elem.
1 Elementary
39 Junior High
58 Senior High
24 Junior/Senior High
7 Elem. & secondary
8 NR

13. LOCATION OF SCHOOL OR SYSTEM:

21 In a city of 250,000 or more population
11 In a suburb of such a city
17 In a city of 50,000 to 250,000 population
4 In a suburb of such a city
49 In a city or town of 2,500 to 50,000 population
4 In a suburb of such a city or town
24 In a city or town of less than 2,500; or in a rural area
8 NR

14. STUDENT BODY OF SCHOOL IN TERMS OF (A) PER CENT OF NON-WHITE AND (B) PER CENT FROM FAMILIES MARKED BY ECONOMIC POVERTY:

A. Non-white		B. Poverty	
27 0%	5 50-59%	5 0%	5 50-59%
41 1-9%	60-69%	41 1-9%	3 60-69%
21 10-19%	2 70-79%	35 10-19%	4 70-79%
9 20-29%	3 80-89%	16 20-29%	3 80-89%
7 30-39%	16 90-100%	5 30-39%	8 90-100%
1 40-49%	6 NR	4 40-49%	0 NR

* in the subject field of the Institute or Program

NR means not reported; this category also includes inaccurate or illegible responses.

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APPENDIX A - 4

PUBLICITY BROCHURE

Experienced Teacher Fellowship Program

Supported by the U.S. Office of Education, As Authorized Under (Title V, Part C, P.L. 89-329, Higher Education Act of 1965)

This program leads to a master's degree with a major in industrial education for TWENTY-FOUR (24) industrial arts teachers selected from the entire United States. They are to receive a $4,000 fellowship with an additional $600 for each dependent to spend the academic year (September 18, 1967 to June 18, 1968) at Wayne State University in industrial Detroit. In this program, teachers will: (1) become competent in those aspects of American industry which embrace Industrial Materials and Processes or Energy and Propulsion Systems, and (2) develop, field test, and evaluate the curriculum materials needed for an application of these evolving technologies in the school systems to which they will be returning in September, 1968.

1. To provide selected teachers with in-depth courses in the evolving technical areas of Industrial Materials and Processes or Energy and Propulsion Systems.
2. To provide supporting short-term intensive technical instructional programs through industrial field experiences with selected industries and through the program at the WSU Applied Management and Technology Center.
3. To extend the participants' understanding of the learning process so as to enable them to work more effectively with students having a wide range in abilities.
4. To provide participants with an opportunity to become involved with sociological factors that now need to be considered in depth by educators in urban schools.
5. To direct and assist the fellows in developing course materials essential for the implementation of the two divisions of the Galaxy Approach, namely: Industrial Materials and Processes or Energy and Propulsion Systems.
6. To evaluate the adequacy and quality of preparation in the major area with consideration for:
   - technical competence.
   - teaching competence.
   - leadership development.

This program has been organized to provide for the fulfillment of these six objectives. To do this, the total group of twenty-four fellows will be divided into two equal groups of twelve each. This will make it possible for one group to be specializing in the broad-area of Industrial Materials and Processes, while the second group will be concentrating on the broad-base of Energy and Propulsion Systems. These teachers will participate in selected industrial programs, such as those conducted by The Bendix Corporation to upgrade personnel in numerical control; General Electric for an understanding of modern metallurgical practices; Vickers Incorporated Hydraulic School for the practical application, operation, and maintenance of hydraulic equipment; and Flick-Reedy Corporation for a fluid power institute.

In addition to direct contacts and experiences in Detroit area industries, there will be on-campus courses at WSU in: Theory and Application of Energy Sources; Data Processing; Advanced Machine Tool Processes; and Research Methods in Materials and Processes.

Much emphasis will be placed on the development, field testing, and evaluation of curriculum and teaching materials now needed for the implementation of occupational education under the Galaxy Approach in comprehensive high schools.

During each of the three WSU quarters there will be common courses for both groups in educational psychology, educational sociology, guidance and counseling, mechanical engineering, and some courses in the Department of Industrial Education.

This plan for graduate study provides also for supporting cognate subjects to equip the teacher with the technical background and professional competencies essential for success with the Galaxy Approach for students with a wide range of interests and abilities.

Director — Dr. G. Harold Silvius, Professor and Chairman, Department of Industrial Education, WSU.
Associate Director — William D. Wolansky, Research Associate, Department of Industrial Education, WSU.

Other faculty members from the Department, the College of Education, College of Engineering, School of Business Administration, and College of Liberal Arts will assist with this program. There will be, also, many consultants and lecturers from the Detroit Board of Education, Applied Management and Technology Center, and cooperating industries.

Selection of fellows will be based on these criteria:

(a) A Bachelor's degree with a major in industrial arts or industrial education from an accredited institution.
(b) A minimum of two years of teaching experience in industrial arts.
(c) Evidence of a teaching commitment for the 1968-69 school year in industrial arts from the Superintendent or Principal.
(d) Necessary undergraduate preparation to meet graduate admission requirements at Wayne State University.

Applications must be postmarked no later than April 15, 1967.

Selected participants will be notified on or before April 28, 1967.

Participant's letters of acceptance must be postmarked on or before May 6, 1967.

Each fellow will receive, after acceptance in the program, tax-free, a $4,000 fellowship and a $600 stipend for each dependent. All tuition and fees are paid from funds provided for this purpose. Fellows will pay for their own room, board, books, and incidentals. Travel to and from Wayne State University is not reimbursible. Fellows will pay also for their own room and board during these short periods that they may be away from Detroit to participate in essential field experiences. Fellows in Group Two will not be charged, however, for travel to or from Flick-Reedy Corporation, Bensenville, Illinois.

Wayne State University is an urban university in the heart of an exciting metropolitan environment. The hundred years since the inception of the University have seen WSU develop into one of the largest institutions of higher learning in the United States. Wayne continues to grow as a cultural, educational, and research center in Detroit as it moves to celebrate its centennial in 1968. The current enrollment is approximately thirty-one thousand. Seventy percent of the students are undergraduates, with graduate professionals, and graduates making up the remaining thirty percent.

Educational opportunities at the University are enhanced by the invaluable resources of the Detroit Historical Museum, Detroit Institute of Arts, and laboratories of business, industry, and schools which surround the campus.

The facilities of the General Library, Kresge Science Library, and the adjacent Detroit Public Library are available to WSU students. Students have direct access to approximately 925,000 books and some 7,000 current periodicals. Those materials needed for research which are not available in the WSU and Detroit Public Libraries may be secured from other libraries through interlibrary loan. The General Library houses the John Herman Trybom Memorial Collection, one of the largest and most up-to-date technical collections in industrial education.

The WSU Housing Office helps out-of-town students locate housing. Those with families should arrange for housing as early as possible after they have been notified of their acceptance to the program. Several privately owned residences are listed with the Housing Office. Small furnished apartments range from $70 to $90 a month. Eating facilities are available in a number of university operated services and privately owned restaurants immediately adjacent to the campus. The University is accessible via a good network of expressways. Parking at WSU costs 50¢ a day.

Numerous recreational and cultural facilities are available since WSU is located in "the cultural center" of Detroit. The campus is surrounded by the Fisher Theater, Detroit Institute of Arts, Historical Museum, and Hilberry Classic Theater. Other attractions in the metropolitan area include the Henry Ford Museum, Greenfield Village, the Detroit Zoo, Belle Isle, Bob-Lo Island, and the Cranbrook Institute. Since WSU will celebrate its centennial in 1967-68, there will be many opportunities for the fellows in this program to be involved in many functions. The University is approximately two miles from downtown Detroit, which provides many points of interest.

DISCRIMINATION PROHIBITED. — Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, The Experienced Teacher Fellowship Program as authorized under title V, Part C of the Higher Education Act of 1965, like every program or activity receiving financial assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

ADDRESS INQUIRIES TO:
Dr. G. Harold Silvius, Director
Experienced Teacher Fellowship Program
Department of Industrial Education
Wayne State University
Detroit, Michigan 48202

APPENDIX A - 5

STAFF DIRECTORY

Name	Course	Address
*Altland, George	(IED 6170)	Vickers Hydraulic School 1400 Oakman Detroit, Michigan 48232
Anderson, Karl O.	(ME 0511) Engg.	4855 Fourth
Baysinger, Gerald B.	(IED 7189) Educ.	213 Educ. Bldg.
*Brierley, R. G.	(IED 6170)	G. E. (Metallurgical) 11177 8 Mile, Warren, Mich. 48089
Brown, Francis	(GB 0562)BA	327 Prentis Bldg.
Cochran, Leslie	Project Educ. Evaluation	221 Educ. Bldg.
*Douce, I. D.	(IED 6170)	Miller Fluid Power Inst. Flick-Reedy Corporation 7N015 York Road Bensenville, Illinois 50106
Gibbons, Charles L.	(IED 6170) Det. Testing Lab. AMTC	18200 Northend Oak Park, Mich. 48237
Kerber, August F.	(EDS 7621) Educ.	373 Educ. Bldg.
Rivers, Gordon E.	(ME 0616) Engg.	4855 Fourth
Silvius, G. Harold (Director)	(IED 7187)Educ.	215 Educ. Bldg.
Sullivan, John C.	(IED 7735) Educ.	343 Educ. Bldg.
*Toth, Joseph	(IED 6170)Educ.	The Bendix Corporation Industrial Control Div. 8880 Hubbel Detroit, Mich. 48228
Wolansky, William D. (Associate Director)	(IED 6173)Educ. (IED 6185) (IED 6187)	213 Educ. Bldg.
Wurtz, Robert E.	(EGC 7701)Educ.	329 Educ. Bldg.

*Persons in charge of Industrial Plant Schools

APPENDIX B

OPERATIONAL BUDGET

ExTFP Grant (302-1612) 24 Fellowships $2,500 per Fellow	$60,000
1) Tuition and Fees Graduate (State and out-of-state fees)	37 percent
2) Instructional Staff Salary and Benefits-Associate Director Program Evaluator, Instructional Coordinator, and special supporting staff	25 percent
3) Secretarial and Clerical Staff Salary and Benefits for Secretaries, Technicians and Evaluators	11 percent
4) Printing and Publishing Publicity brochures, take home package and final report	6 percent
5) Honoraria Educational Consultants and Cooperating Detroit Public School Teachers	5 percent
6) Travel Directors and Staff Visits to Conferences, Workshops, and Local Schools; and Consultants Expenses	5 percent
7) Equipment Purchased Small hand tools, replacement Parts, and video-tape recorder	4 percent
8) Supplies - office Stationary, stamps, office equipment Rental and General Supplies	3 percent
9) Supplies - Instructional Transparencies, audio and visual tapes and programed instruction materials	2 percent

10) Conference Activities
Rental of Conference Space, Equipment and Materials — 1 percent

11) Library Materials
Periodicals, reference books and technical brochures — 1 percent